

Release Notes

hp StorageWorks Secure Path v2.0D Service Pack 2 for IBM AIX

Product Version: 2.0D Service Pack 2

Eighth Edition (May 2004)

Part Number: T3034-98201

This document summarizes features and characteristics of the Secure Path v2.0D Service Pack 2 for IBM AIX systems using HP StorageWorks Array Controllers for Fibre Channel. This document provides information not covered elsewhere in the product documentation.

For the latest version of these release notes and other Secure Path documentation, access the HP storage website at <http://www.hp.com/country/us/eng/prodserv/storage.html>.



© Copyright 2001–2004 Hewlett-Packard Development Company, L.P.

Hewlett-Packard Company makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Hewlett-Packard. The information contained in this document is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

FibreQuik™ is a trademark of Cambex Corporation.

Hewlett-Packard Company shall not be liable for technical or editorial errors or omissions contained herein. The information is provided “as is” without warranty of any kind and is subject to change without notice. The warranties for Hewlett-Packard Company products are set forth in the express limited warranty statements for such products. Nothing herein should be construed as constituting an additional warranty.

Secure Path v2.0D Service Pack 2 for IBM AIX Release Notes
Eighth Edition (May 2004)
Part Number: T3034–98201

About this document

This section describes the content reflected in this document, including:

- [Release notes information](#), page 3
- [Intended audience](#), page 3
- [Secure Path for IBM AIX web kit contents](#), page 4

Release notes information

These Release Notes cover the following major topics:

- [Operating system support](#), page 5
- [Secure Path operational features](#), page 6
- [Operating considerations](#), page 10
- [Avoiding problem situations](#), page 20

Intended audience

This document is intended for individuals responsible for installing, configuring and maintaining StorageWorks Secure Path v2.0D Service Pack 2 in their IBM AIX server environment with any one of the following StorageWorks RAID Arrays:

- StorageWorks HSV100 Enterprise Virtual Array
- StorageWorks HSV110 Enterprise Virtual Array
- StorageWorks HSG80 RAID Storage Systems

Note: Refer to your *HP StorageWorks IBM AIX Kit Enterprise Virtual Array Installation and Configuration Guide* for information about Enterprise Virtual Array installations.

Secure Path for IBM AIX web kit contents

The StorageWorks Secure Path v2.0D Service Pack 2 for IBM AIX comprises:

- The Secure Path documentation:
 - *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide*, part number AA-RLT0F-TE
 - *HP StorageWorks Secure Path v2.0D Service Pack 2 for IBM AIX Release Notes*, part number T303-98101 (this document)
- The following Secure Path software:
 - Secure Path v2.0D Service Pack 2 for IBM AIX
 - Secure Path for HACMP environment

The information in these release notes is current at the time of printing. The latest version of these release notes and the additional documentation, including white papers and best practices documents, are available via the HP website at <http://www.hp.com>.

Operating system support

Table 1 lists the hardware and software supported by this release.

Table 1: Required Components

Host Feature	Requirement
Platform	IBM RS/ 6000 (PCI bus only)
Operating Systems	AIX 4.3.3, AIX 5.1, or AIX 5.2
Secure Path Software Kit	HP StorageWorks Secure Path v2.0D Service Pack 2 for IBM AIX
Storage Systems	HSG80 RAID Storage Systems with dual controllers running ACS v8.6 or v8.7 HSV100 RAID Storage Systems with dual controllers running VCS v3.010 or v3.014 HSV110 RAID Storage Systems with dual controllers running VCS v3.010 or v3.014
Solution Software Kit	HP StorageWorks Solution Software v8.7 for IBM AIX HP StorageWorks IBM AIX for Enterprise Virtual Array v3.0 or v3.0B
Host Bus Adapters	PCI Adapter, 197819-B21 (DS-SWIA1-PD) PCI Adapter or Cambex FibreQuik PC2000
FC Interconnect Hardware	Refer to the <i>HP StorageWorks SAN Design Reference Guide</i> for the latest supported adapters and switches at http://h18006.www1.hp.com/products/storageworks/san/documentation.html

Coexistence with other multi-pathing products

Secure Path v2.0D Service Pack 2 for IBM AIX functions in a SAN environment with other HP multipathing products such as Secure Path for SUN Solaris, Secure Path for Windows, and Secure Path for HP-UX, and Secure Path for XP and VA as defined and described in the *HP StorageWorks SAN Design Reference Guide*, and other SAN technical documentation. This document is available on the HP website at:

<http://h18006.www1.hp.com/products/storageworks/san/documentation.html>.

Choose **SAN Design Reference guide**.

Secure Path operational features

Hardware prerequisites for Secure Path

Two paths must exist between each server and storage system. Each path must include a separate:

- Fibre Channel (SAN) Switch
- HSG80, HSV100, or HSV110 Controller
- Fibre Channel Host Bus Adapter (HBA)

Note the following:

- On systems that support multiple I/O boards, we recommend that each host bus adapter be installed on separate I/O boards to eliminate the I/O board as a single point of failure.
- Secure Path 2.0D for IBM AIX Service Pack 2 supports a maximum of 4 RAID systems per adapter pair and 8 adapter pairs per server. The maximum number of supported LUNs is 992 or 1024 per AIX server, depending on the SCSI mode.
- The RAID storage system must be configured for Fibre Channel Fabric connectivity in Multiple-bus Failover Mode.

Installing the new driver

The Secure Path v2.0D Service Pack 2 for IBM AIX v2.0D is available through the HP website

<http://h18004.www1.hp.com/products/sanworks/secure-path/index.html>.

Note: A previous version of Secure Path for IBM AIX must be installed on your system.

After downloading the software, drivers, and associated documentation to a directory of your choice, install the new driver as follows.

1. Change to the directory where you downloaded the software:

```
cd /<directory_location>
```

2. Install the new driver as follows:

```
cd DRIVER
./SP_install
```

Note: Adobe software and HACMP modifications must be installed from the server.

Driver version identification

Verify that the driver version for the FC HBA is 1.5.25.3. by entering the following:

```
# lslpp -l PC1000.driver.obj
```

The following example verification message displays:

```
Fileset                                Level State Description
-----
Path:/usr/lib/objrepos
PC1000.driver.obj 1.5.25.3 COMMITTED Secure Path AIX Fabric
```

Installation types

Installations of Secure Path v2.0D Service Pack 2 may be of two types:

- A server that has never been configured with a RAID system. For this installation, verify that the steps outlined in Chapter 3 of the *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide* have been completed.
- A server that already has a RAID system with a single path installation under the IBM AIX Solution Kit. The steps to perform this installation are documented in Chapter 4 of the *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide*.

Installation in the Enterprise Virtual Array environment

The Enterprise Virtual Array storage system requires unique fabric connections. For detailed information, refer to the *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide* and the *HP StorageWorks IBM AIX Kit for Enterprise Virtual Array Installation and Configuration Guide* for your EVA version.

Installations in the HACMP environment

- Secure Path v2.0D Service Pack 2 FC HBA driver must be installed on all nodes accessing the RAID system in the cluster.
- Secure Path v2.0D Service Pack 2 for IBM AIX requires modification to the ODM database to perform properly in the HACMP environment. The binary file `cluster.HSGXX.scsi.support.1.0.0.1` in the `hacmp` directory must be installed if Secure Path is used in a HACMP environment.
- SWCC Installation Considerations:
 - The SWCC agent must be installed and configured on all systems in the cluster. Verify that each server has the agent access device identified and that the RAID systems are seen by each server.
 - The SWCC agent may only be running on one server in the cluster.
 - Install the SWCC Agent failover script on one and only one node of the cluster.

For more information on HACMP and agent installation, refer to one of the following references:

- *HP StorageWorks HSG80 ACS Solution Software Version 8.7 for IBM AIX Installation and Configuration Guide*
- *HP StorageWorks IBM AIX Kit V3.01 or V3.01 for Enterprise Virtual Array Installation and Configuration Guides*

Partitioned storagesets

Storage Units configured from partitioned storagesets must be identified and defined as other units on the RAID storage system. It is required that all partitions be assigned to the same HSGx0 controller.

Under Secure Path, if units created from partitions have a preferred path set to a controller, then all such partitions must have the same preferred path. Failover and failback events of a partitioned unit affect all partitions of the same storageset.

Connection offsets

If connection offsets are used with Secure Path, set the same offset value on both connections to the AIX HBA pair. Refer to the *HP StorageWorks HSG 80 ACS Solution Software Version 8.7 for IBM AIX Installation and Configuration Guide*.

The cbxfcar autorecovery daemon

The Secure Path autorecovery daemon (`cbxfcar`) is installed in conjunction with the FC HBA driver. The autorecovery daemon (`cbxfcar`) starts when the driver is installed and an entry is added to `/etc/inittab` to automatically start the daemon on system boot.

Operating considerations

Configuration

The following example shows the output when displaying the Secure Path Adapters using the `lsdev -Cc adapter` and the attached storage using `lsdev -Cc disk` commands.

```
# lsdev -Cc adapter
sa0      Available 01-S1      Standard I/O Serial Port
sa1      Available 01-S2      Standard I/O Serial Port
sa2      Available 01-S3      Standard I/O Serial Port
siokma0  Available 01-K1      Keyboard/Mouse Adapter
fda0     Available 01-D1      Standard I/O Diskette Adapter
scsi0    Available 10-60      Wide SCSI I/O Controller
iga0     Available 10-68      GXT110P Graphics Adapter
scsi1    Available 30-58      Wide SCSI I/O Controller
scsi2    Available 30-60      Wide/Fast-20 SCSI I/O Controller
scsi3    Available 30-68      Wide/Fast-20 SCSI I/O Controller
scsi4    Available 30-78      Wide/Fast-20 SCSI I/O Controller
sioka0   Available 01-K1-00 Keyboard Adapter
ppa0     Available 01-R1      Standard I/O Parallel Port Adapter
ent0     Available 10-70      IBM 10/100 Mbps Ethernet PCI Adapter
                                   (23100020)
ent1     Available 10-78      IBM 10/100 Mbps Ethernet PCI Adapter
                                   (23100020)
ent2     Available 10-80      IBM PCI Ethernet Adapter (22100020)
sa3      Available 30-70      IBM 8-Port EIA-232/RS-422A (PCI)
                                   Adapter
sioma0   Available 01-K1-01 Mouse Adapter
scsi5    Available 20-58      Cambex Fibre Channel I/O Controller
scsi6    Available 20-60      Cambex Fibre Channel I/O Controller
# lsdev -Cc disk
hdisk0   Available 10-60-00-8,0 16 Bit SCSI Disk Drive
hdisk1   Available 30-78-00-1,0 Other SCSI Disk Drive
hdisk2   Available 20-58-00-0,0 HP HSG80 Command Console LUN
```

```
hdisk3  Available 20-58-00-0,3  HP HSG80 RAID Array
hdisk4  Available 20-58-00-0,4  HP HSG80 RAID Array
hdisk5  Available 20-58-00-0,5  HP HSG80 RAID Array
hdisk6  Available 20-58-00-0,1  HP HSG80 RAID Array
hdisk7  Available 20-58-00-0,2  HP HSG80 RAID Array
```

In the previous example, note that the output HP HSG80 RAID Array hdisks are all assigned to one of the two Cambex Fibre Channel I/O Controllers for the Secure Path configuration. This occurs during configuration and it is determined by the sequence in which the devices are found and defined. The sequence is irrelevant to Secure Path as the driver automatically switches I/O to the alternate path if an active path fails.

Controller software upgrades

HSGx0

You can upgrade the RAID Storage Subsystem controller software (ACS) Version 8.6 to Version 8.7 without terminating I/O. This procedure is known as a *Rolling Upgrade*. Refer to the *HP StorageWorks HSG80 Array Controller V8.7 Maintenance and Service Guide* for detailed information about Rolling Upgrades.

HSVx

When upgrading EVA VCS firmware, both controllers become inoperative. Secure Path for IBM AIX cannot handle this condition. You must stop all operations to an EVA storage unit prior to upgrading the HSVx software.

Managing Secure Path v2.0D Service Pack 2 using smit

The Secure Path management tools have been integrated into the IBM AIX `smit` utility. From the `smit` menus, many different functions can be performed such as:

- Monitoring failover
- Configuring failback
- Resolving failures

Note: HP is currently working on the issue of rolling upgrades on EVAs. The resolution will be available in a future Secure Path for IBM AIX release.

Most of these functions may also be accessed by the Secure Path management utility (cbxfscm), but there are some additional parameters which cannot be modified from cbxfscm.

Note: At any point, if you wish to see the command line `smit` uses to execute a function, press **F6** and the command line displays.

From the `smit` utility System Management menu, choose **Devices**. This presents a list of applicable devices to the system. Then choose the **Cambex Fibre Channel Adapter** menu. The following screen displays:

Cambex Fibre Channel Adapter

Move cursor to desired item and press Enter.

```
List All Cambex FC Adapters
Change / Show Characteristics of a Cambex FC Adapter
Generate Error Report
Trace Cambex FC Adapters
Change / Show Device Status
Configure Path / Show Path Status
Change / Show Auto Recovery of Cambex FC Adapters
```

F1=Help
F8=Image

F2=Refresh

F3=Cancel

F9=Shell

F10=Exit

Enter=Do

To view adapters from this screen, select the first option, List All Cambex FC Adapters. This will display a brief listing of all Cambex Fibre Channel I/O Controllers installed on the system.

Selecting **Change / Show Characteristics of a Cambex FC Adapter** brings up a detailed menu outlining many different adjustable parameters for the Cambex FC adapter.

One important field is the DMA window size. This field must be adjusted on certain machines to see LUNs. If you are having difficulty detecting LUNs on your system, you should refer to “[Avoiding problem situations](#)” on page 20.



Caution: Changing any of the other options on the **Change/Show Characteristics** of a Cambex adapter can result in system instability and/or unpredictable behavior.

To receive specific information on any of the other options, move the cursor over the option, press **F1**, and a brief description displays.

The next two items on the **Change / Show Characteristics of a Cambex FC Adapter** menu are **Generate Error Report** and **Trace Cambex FC Adapters**. Both of these options are only necessary for obtaining system information when troubleshooting with an HP representative. For other information on these entries, see “[Avoiding problem situations](#)” on page 20.

Change / Show Device Status is the next menu option. Selecting this option displays a list of hdisks that are under FC adapter control. Once selected, the current state of the LUN, represented by that hdisk display. To move the online path of that LUN, select the desired online path available from the pop-up menu choices, and press **Enter**. This transitions the LUN to the new path, provided the path is accessible.

Select **Configure Path / Show Path Status** to change a path status. Use this option to display the current state or modify a path.

The **Change / Show Auto Recovery of Cambex FC Adapters** lets you change the timing of probes by the `cbxfcar` daemon for failed or recovered paths.

When a path has failed, Secure Path begins probing it to see when it returns to a Standby state. The options in this menu lets you tune the frequency of the probing. The first option, **Time Interval to Check Failed Paths (sec)** is the amount of time (in seconds) that passes between probes. The second option, **Number of Inquiries to Check Failed Path**, determines how many times the path must appear ready before it is configured as the standby path.

The *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide* does not reference `smit` menus. Except for the **Change/Show Auto Recovery of Cambex FC Adapters** menu, you can use the Secure Path status and management tool (`cbxfesm`) to configure most FC HBA parameters. Refer to the *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide* for further details on `cbxfesm`.

Dynamic LUNs

Storage units may be added or deleted from your overall storage configuration without having to stop I/O and reboot the system. You can add units to the currently active Storage System. You can also add or remove a RAID Storage System with one or more units defined.

Adding storage units

To add storage units use the following steps:

1. Establish a connection to the storage system either through a serial port connection or through the SWCC agent.

Note: Refer to the *HP StorageWorks HSG80 ACS Solution Software Version 8.7 for IBM AIX Installation and Configuration Guide* for more information regarding SWCC or CLI Commands. The following examples use the CLI Commands only.

2. After a connection is established, configure the storage in the storage system. This is accomplished with the HSGx0 CLI (Command Line Interface) ADD command, such as ADD DISK or ADD RAIDSET.
3. The newly defined storage is assigned a unit designation (LUN) using the ADD UNIT command. A maximum of 32 LUNs can be defined per connection (or HBA pair) and the LUN number cannot be greater than 32 (within the connection offsets).

Note: In SCSI-3 mode., only 31 LUNs are allowed.

4. Make the new storage unit available to the IBM AIX system for use. Enter:

```
# cfgmgr
```

on the command line in the IBM AIX system. This can all be accomplished without affecting any active processing being performed in the storage system. Once the new storage unit is configured to the IBM AIX system it is available for use.

Deleting storage units

Note: Before deleting storage units you must stop I/O to that unit, unmount the Logical Volume, and export the Volume Groups that have been created on the designated unit to be deleted. Refer to *Appendix A, Removing Secure Path Software* in the *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide*.

You only need to remove Volume Groups from the storage unit to be deleted.

To delete (remove) storage units use the following steps:

1. Establish a connection to the storage system either through a serial port connection using the CLI or through the SWCC agent.

Note: The following example uses the CLI Commands only.

2. Enter the CLI command `SHOW UNITS` to list the LUNs and the storage units are assigned to. From this information determine which LUN is to be deleted.
3. List the hdisks using the IBM AIX command as follows:

```
# lsdev -Cc disk
```

4. Remove any Volume Groups on the storage unit to be deleted.
5. Remove the hdisk assigned to the LUN to be deleted using the IBM AIX system command:

```
#rmdev -dl hdiskn
```

n is a sequence number assigned by AIX during configuration.

6. Enter the CLI command `DEL` and the LUN (unit designation), such as `DEL UNIT D9`. This removes the LUN D9 from the storage system.

For example, if you have LUNs D1 through D12 defined in the storage system, IBM AIX may assign `hdisk4` to LUN D1 and go up to `hdisk15` assigned to LUN D12 as shown in [Table 2](#).

Table 2: LUN and hdisk Assignment

hdisk	LUN
4	D1
5	D2
6	D3
7	D4
8	D5
9	D6
10	D7
11	D8
12	D9
13	D10
14	D11
15	D12

If LUN D9 is deleted from the storage system then hdisk12 must be removed from the AIX configuration table.

7. To complete the process, enter the following on the command line in the AIX system:

```
# cfmgr
```

Although hdisk12 has been removed the sequence numbers of the other hdisks are not affected with the `cfmgr` command. If the system is rebooted, the hdisk sequence changes.

Note: The hdisks assigned to the HSG80 RAID array are in sequence with the defined LUNS but this sequence may be interrupted by other devices that had been previously defined in the IBM AIX system. For example, hdisk4 through hdisk8 may be assigned to LUNs D1 through D5, hdisk9 may be another SCSI device and hdisk10 through hdisk16 are assigned to LUNs D6 through D12.

There is no requirement that LUNs be created sequentially. For example, you can create LUNs D1, D4, D6, and D12. The hdisk assignment (from the previous example) would associate hdisk4 to D1, hdisk5 to D4, hdisk6 to D6 and hdisk7 to D12. If a new LUN, D3, is created after the previously defined LUNs have been configured by IBM AIX `cfdmgrp`, the sequential mapping is disrupted and hdisk8 is assigned to LUN D3.

The following example shows the relationship between the hdisk and the LUN.

List the hdisks. Enter:

```
# lsdev -Cc disk
```

In the following example, the hdisk5 shows a series of numbers *2D-08-00-0,1*. The first 2 numbers *2D-08* are associated with the HBA, the last 2 numbers *0,1* are the target, LUN designations.

```
# lsdev -Cc disk
```

```
hdisk0 Available 10-60-00-8,0 16 Bit SCSI Disk Drive
```

```
hdisk1 Available 30-78-00-1,0 Other SCSI Disk Drive
```

List the units created on the RAID storage system. This requires a serial connection to the HSGx0 storage system or access through the SWCC client applet.

Note: The following example uses a CLI Command.

```
HSG_CONTROL> SHOW UNITS
```

LUN	Uses	Used by
-----	------	---------

D1	DISK10000	
D2	DISK20000	
D4	DISK30000	
D5	DISK30100	
D6	DISK50300	
D7	DISK30300	
D8	DISK40100	
D10	DISK40300	

List the association of hdisks to RAID storage units using the Secure Path utility `/usr/cbxfc/cbxfcsm listall`. In the following example, `scsi2` and `scsi3` are the HBAs for Secure Path. The first number (0) is the target designation and the second number is the LUN.

```
# /usr/cbxfc/cbxfcsm listall
```

# Device	Online	Alternate
hdisk4	scsi3 0,0	scsi2 0,0
hdisk5	scsi3 0,1	scsi2 0,1
hdisk6	scsi3 0,2	scsi2 0,2
hdisk7	scsi3 0,4	scsi2 0,4
hdisk8	scsi3 0,5	scsi2 0,5
hdisk9	scsi3 0,7	scsi2 0,7
hdisk10	scsi3 0,8	scsi2 0,8
hdisk11	scsi3 0,10	scsi2 0,10
hdisk12	scsi3 0,6	scsi2 0,6

In the previous example, the `hdisk4` assignment to LUN 0 is the Console LUN. The Console LUN is always enabled and assigned LUN 0 when in SCSI-3 mode. When operating in SCSI-2 mode, you may disable the console LUN. It is recommended that LUN 0 be reserved for the command console LUN.

Reassigning storage units

To reassign a storage unit to a different LUN, the current LUN must first be deleted (see “[Deleting storage units](#)” on page 21) and the storage unit (DISK, RAIDSET, etc.) must be initialized using the CLI command `INIT`, such as `INIT DISK40100`. The storage unit may then be assigned to a new LUN using the CLI `ADD` command.

The new LUN must be made available using `cfgmgr`. Volume groups previously exported must be imported and mounted.

Refer to *HP StorageWorks Solution Software Version 8.6 or 8.7 for IBM AIX* for further information.

SCSI-3 considerations

Secure Path v2.0D Service Pack 2 for IBM AIX supports SCSI-3 Mode. To use SCSI-3 mode, the Storage System HSGx0 controllers must be set to SCSI-3 mode. To accomplish this you must establish a connection to the HSGx0 using CLI. You can change the SCSI version default is SCSI-2 using the CLI `SET` command as in `SET SCSI-VERSION=SCSI-3`. This sets both controllers to SCSI-3 mode.

There are a few issues concerning the use of SCSI-3 mode and Secure Path v2.0D Service Pack 2 for IBM AIX as follows:

- Using SCSI-3, the Command Console LUN (CCL) is always enabled on each port of each controller and assigned to LUN 0. If a storage unit has been assigned to LUN 0, the CCL prevails and that storage unit is not presented to Secure Path (or IBM AIX).
- When configuring the system with SCSI-3 mode, a CCL is configured for each port on each controller. Since Secure Path uses only one port on each controller for each path, there are two CCLs displayed when the IBM AIX command `lsdev -Ccdisk` is used. Both are assigned the same target and LUN 0, but are assigned to different HBAs. The maximum number of data LUNs is reduced from 32 to 31.
- The Secure Path utility `/usr/lpp/cbxfc/cbxfcsm listall` displays both paths for the Console LUN as active. In SCSI-3 mode, the status of the paths are disregarded as one path is always available and the Console LUN is not under control of Secure Path.

Avoiding problem situations

Sequence of removing hdisks and adapters

If it becomes necessary to remove the HBA from the host computer it is recommended that the hdisks be removed first and independently of the adapters. Attempting to remove both the hdisks and the adapters using `rmdev -Rdl scsi4` can cause a system freeze in some instances, forcing a reboot.

Connection offsets

The HSG controller ACS allows for connection offsets. If you use connection offsets with AIX, set the same offset value on both connections to the AIX HBA pair.

Create only two paths to a RAID storage unit

EVA requires that a port from each controller be connected into each fabric. Refer to the section “Setting UP Switches and Zoning” in Appendix B of the *HP StorageWorks Secure Path v2.0D for IBM AIX Installation Guide* for information about switch zoning in an EVA environment.

Secure Path v2.0D Service Pack 2 for IBM AIX requires that only one path per HBA exists from the server to a LUN on the RAID storage system.

Viewing LUNs after running `cfgmgr`

If you run `cfgmgr` and can see the adapters but not the LUNs, set your DMA size to 64MB by entering the following commands:

```
# rmdev -l scsi4
scsi4 Defined
# chdev -l scsi4 -a dma_window=64M
scsi4 changed
# mkdev -l scsi4
```

Deleting storage units

To delete Storage Units, you must deactivate and export any volume groups defined on the physical storage unit that is to be deleted. HP recommends that you back up all information in your volume groups before you proceed. Retain the logical volume and volume group information. This information is useful when restoring the volume group later.

Performance on SP class machines

On some SP machines, problems have been noticed with multiple adapters on the third PCI bus (pci2). On these machines using pci2 should be avoided as it has an adverse effect on system performance.

Logging errors and debugging problems

When problems occur and possible troubleshooting information is required by StorageWorks personnel, use the following commands:

```
# errpt -a
```

This command prints a full output of errors logged by the system. Because the error list can be important for locating problems with the software this should probably be output to a file as shown:

```
# errpt -a > /tmp/errorlog.txt
```

Another utility, `runtrace`, found in the `/usr/lpp/cbxfc` directory may prove helpful for debugging problem situations. Enter:

```
# /usr/lpp/cbxfc/runtrace
```

Now recreate the symptoms of whatever problem is occurring and then enter the following commands:

```
# trcstop
```

```
# trcrpt > /tmp/trace.out
```

Provide the contents of the `/tmp/trace.out` file to an HP representative for analysis.

You can run the commands `errpt -a` and `runtrace` from the `smit` menus. They are referenced in the **Cambex Fibre Channel Adapter** menu as **Generate Error Report** and **Trace Cambex FC Adapters**. See [“Managing Secure Path v2.0D Service Pack 2 using smit”](#) on page 11 for more information on using `smit` to control Secure Path.